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**DREDGING STATIONS OF THE UNITED STATES FISH COMMISSION
STEAMER FISH HAWK, LIEUT. Z. L. TANNER COMMANDING, FOR
1880, 1881, AND 1882, WITH TEMPERATURE AND OTHER OBSERVA-
TIONS.**

Arranged for publication

By RICHARD RATHBUN.

In the summer of 1880, the headquarters of the United States Fish Commission were established at Newport, R. I., and the steamer Fish Hawk, then newly constructed, made its dredging and trawling trips from there, whenever the weather permitted. The field of explorations for the summer included Narragansett Bay, Sakonnet River, and the regions to the northward, eastward, and southward of Block Island. In September and the first part of October, three trips were made by the Fish Hawk to the inner edge of the Gulf Stream slope, between latitudes $40^{\circ} 05' 42''$ N. and $39^{\circ} 46'$ N., and longitudes $70^{\circ} 22' 06''$ W. and $71^{\circ} 10'$ W., in depths of 64 to 487 fathoms, resulting in the discovery of a new and exceedingly rich fauna, both as regards fish and marine invertebrates. On her passage to Washington in November, the Fish Hawk also trawled off the mouth of Chesapeake Bay, in depths of 18 to 300 fathoms.

During the summers of 1881 and 1882, the headquarters of the Commission were at Wood's Holl, Mass. As the shallow waters of this region had been quite fully explored by the Commission in 1871 and 1875, very little time was expended in work near land; but advantage was taken of all pleasant weather to still further investigate the rich faunal region of the Gulf Stream slope, discovered the previous year. Seven trips were made to this region, in 1881, between latitudes $39^{\circ} 40'$ N. and $40^{\circ} 22'$ N., and longitudes $69^{\circ} 15'$ W. and $71^{\circ} 32'$ W., in depths of 43 to 782 fathoms. A line of dredgings and trawlings, at intervals of about four miles, was made from off Noman's Land to the Gulf Stream slope, in order to connect the inshore with the offshore stations; and a few trips were also made in Vineyard Sound, Buzzard's Bay, and off Chatham, Cape Cod, on, and in the vicinity of, Crab Ledge. Cod trawl-lines were set on most of the outside trips, for the purpose of catching fish that would not enter the beam-trawl.

In 1882, five deep-water trips, were made to the same region, extending the area of dredgings considerably beyond its former eastern and western limits. A few hauls of the dredge and beam-trawl were taken in Vineyard Sound, and one trip was made to the one-hundred fathom line, off the eastern side of Cape Cod. The most eastern haul on the Gulf Stream slope for 1882, was in latitude $40^{\circ} 08'$ N. and longitude $68^{\circ} 45'$ W.; and the most western in latitude $39^{\circ} 31'$ N. and longitude $72^{\circ} 06'$ W.; the deepest haul was in 787 fathoms. Cod-trawls were set on two of the trips only.

The temperatures of the air were taken, in part, with a Jas. Green, in part with a Signal Service, thermometer; the temperatures of the bottom and surface waters were obtained by means of Negretti and Zambra deep-sea thermometers. The bearings are all magnetic. As the bearings and latitudes and longitudes indicate only the points at which the dredge or trawl was lowered upon the bottom, the direction of the drift of the vessel and the distance gone over in dredging and trawling have been given in most cases, to show the extent of the hauls. The figures in the column of "Drift" indicate the distance of the drift in miles. The abbreviations in the column of "Apparatus used" have the following significations: D., dredge; R. D., rake-dredge; O. D., oyster-dredge; T., trawl; O. T., otter-trawl; B. T., Blake-trawl; Tan., tangles; C. T., cod-trawl.

The New York fishing schooner, Josie Reeves, Capt. F. M. Redmond, employed by the Fish Commission to look for the tile fish (*Lopholatilus chamaeleonticeps*) in the neighborhood of the one-hundred fathom line, south of Martha's Vineyard, made five stations in that region, which for convenience sake have been given numbers in the regular series from 1145 to 1149, inclusive. She used cod trawl-lines and lobster-pots.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bot- tom.	
	1880.		0	0	Narragansett Bay:							
770	Aug. 6	10 a. m.			Beaver Tail Light, SE. $\frac{1}{2}$ S., 7 mile.		84	Sand and shells	68.0	66.5	62.5	D.
771	Aug. 6	10.30			Beaver Tail Light, SE. $\frac{1}{2}$ S., 7 mile.		84	do	68.0	66.5	62.5	T.
772	Aug. 6	11.35			Beaver Tail Light, S. by E., 14 miles.		8	do	72.0	69.5	67.0	T.
773	Aug. 6	11.45			Beaver Tail Light, S. by E., 14 miles.		8	do	72.0	69.5	67.0	T.
774	Aug. 6	1 p. m.			North end Dutch Island, south, $\frac{1}{2}$ mile.		10 $\frac{1}{2}$	Sand, mud, shells	72.0	69.5	67.0	T.
775	Aug. 6	1.05			North end Dutch Island, south, $\frac{1}{2}$ mile.		12	Gravel, sand, mud	72.0	69.5	67.0	T.
776	Aug. 7	9.45 a. m.			Fort Dumpling, N. W. by W. $\frac{1}{2}$ W., $\frac{3}{8}$ mile.		27 $\frac{1}{2}$	Sand, shells	72.0	67.5	58.5	D.
777	Aug. 7	10.20			Fort Dumpling, N. W. by W. $\frac{1}{2}$ W., $\frac{3}{8}$ mile.		27 $\frac{1}{2}$	Sand, shells, broken shells	72.0	67.5	58.5	T.
778	Aug. 7	10.40			Fort Dumpling, N. $\frac{1}{2}$ E., 800 yards.		23	Gravel, sand, shells	76.0	70.0	58.5	T.
779	Aug. 7	11.05			Beaver Tail Light, NW, 1 mile.		22 $\frac{1}{2}$	Gravel, sand, shells	78.0	68.0	57.5	T.
780	Aug. 7	11.30			Beaver Tail Light, W. N. W., 1 mile.		18	do	79.0	69.0	57.5	T.
781	Aug. 7	12 m.			Beaver Tail Light, W. $\frac{1}{2}$ N., 14 miles.		16	Sand	73.0	69.0	57.0	T.
782	Aug. 12	9.30 a. m.			Off Newport, R. I.		16	Sand, gravel, broken shells	68.0	70.0	60.0	D.
783	Aug. 12	10.15			Brenton's Reef Light-ship, N. by E., 1 mile.		17 $\frac{1}{2}$	do	70.0	70.0	55.0	T.
784	Aug. 12	10.50			Point Judith, W. $\frac{1}{2}$ S., 4 $\frac{1}{2}$ miles.		20	Fine sand and broken shells	71.5	71.0	53.5	D.
785	Aug. 12	11.30			Brenton's Reef Light-ship, N. $\frac{1}{2}$ W., 2 $\frac{1}{2}$ miles.		19 $\frac{1}{2}$	Sand	72.0	71.0	54.5	T.
786	Aug. 12	2.35 p. m.			Brenton's Reef Light-ship, NW. $\frac{1}{2}$ W., 4 $\frac{1}{2}$ miles.		19	Mud and fine sand	74.0	71.0	53.5	D.
787	Aug. 12	3			Brenton's Reef Light-ship, N. NW. $\frac{1}{2}$ W., 4 miles.		19	do	74.0	71.0	53.5	T.
788	Aug. 13	10.40 a. m.			Brenton's Reef Light-ship, N. NW. $\frac{1}{2}$ W., 6 miles.		18	Fine sandy mud	70.0	71.0	54.0	D.
789	Aug. 13	11.05			Brenton's Reef Light-ship, N. NW. $\frac{1}{2}$ W., 5 $\frac{1}{2}$ miles.		17 $\frac{1}{2}$	Sand and scallops	70.0	71.0	54.0	O. T.
790	Aug. 13	11.55			Point Judith, W. NW. $\frac{1}{2}$ W., 8 $\frac{1}{2}$ miles.		16	Fine sand	70.0	71.0	54.5	T.
791	Aug. 13	1.10 p. m.			Point Judith, W. NW., 12 $\frac{1}{2}$ miles.		20	Fine sandy mud	72.0	71.0	60.0	D.
792	Aug. 13	1.50			Point Judith, W. NW., 12 miles.		18	do	72.0	71.0	54.0	D.
793	Aug. 14	9 a. m.			Point Judith, W. NW. $\frac{1}{2}$ W., 6 miles.		19	Sand and broken shells	71.0	69.0	63.0	D.
794	Aug. 14	9.45			Point Judith, W. NW. $\frac{1}{2}$ W., 5 miles.		19	Sand	70.0	69.0	53.0	T.
795	Aug. 14	10.25			Point Judith, W. NW. $\frac{1}{2}$ W., 4 miles.		19	Fine sandy mud	71.0	69.0	53.0	D.
796	Aug. 14	11.00			Point Judith, W. NW., 34 miles.		19	do	70.0	69.0	53.0	T.
797	Aug. 14	11.40			Point Judith, NW. by W. $\frac{1}{2}$ W., 2 $\frac{1}{2}$ miles.		16 $\frac{1}{2}$	Soft mud and coarse sand	70.0	68.5	55.0	D.
798	Aug. 14	12.10 p. m.			Point Judith, NW. by W. $\frac{1}{2}$ W., 1 $\frac{1}{2}$ miles.		12 $\frac{1}{2}$	Sand, gravel, few large stones	71.0	66.0	59.0	D.
799	Aug. 14	12.30			Point Judith, W. $\frac{1}{2}$ N., 14 miles.		13	do	70.0	67.0	61.0	D.
800	Aug. 16	11.35 a. m.			Narragansett Bay: Poplar Point Lights, N. NW. $\frac{1}{2}$ W., 24 miles.		4	Sand	63.0	70.0	69.5	T.

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

Serial num-ber	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bot- tom.	
1880.												
801 Aug. 16	12.20 p. m.		° ' "	° "	Narragansett Bay: Poplar Point Light, W. by N., 24 miles.		4½	Mud	65.0	71.0	68.0	T.
802 Aug. 16	2.15				Hallway Rock, W., 3 of a mile.		12½	do	68.0	70.5	62.0	T.
803 Aug. 16	3.25				Hallway Rock, N. by E., 4 E., 23 miles.		20	Fine sandy mud	67.0	69.0	60.0	D.
804 Aug. 17	11.15 a. m.				Off Newport, R. I. (Brown's Ledge): Cuttyhunk Light, N.E. by E., 8½ miles	NW. by W., 4 mile.	11½	Rocks and sand	68.0	66.0	59.0	D.
805 Aug. 17	12.00 m.				Close to No. 804	W. by S., 4 mile.	14	Fine gravel	69.0	67.0	56.0	Tan.
806 Aug. 17	12.00 m.				Cuttyhunk Light, E.N.E., 7½ miles	SW. by S., 4 mile.	12½	Fine gravel and stones	70.0	67.0	60.0	D.
807 Aug. 17	12.50 p. m.				Cuttyhunk Light, N.E. by E., 3 E., 73 miles.	SW. by S., 4 S., 4 mile.	13	do	70.0	67.0	60.0	D.
808 Aug. 17	1.20				Cuttyhunk Light, N.E. by E., 8 miles	W. by S., 4 mile.	21½	Fine sand	70.0	67.0	52.0	D.
809 Aug. 17	1.55				Off Newport, R. I.; SW. of Brown's Ledge:	W. by S., 4 mile.	21	Fine sand and gravel	70.0	67.0	52.0	T.
810 Aug. 17	2.15				Cuttyhunk Light, N.E. by E., 12 miles	W. by S., 4 mile.	19½	Fine sandy mud	69.0	67.0	53.0	D.
811 Aug. 17	2.20				Off Newport, R. I.; W. of Brown's Ledge:	SW., 4 mile	28½	Sand	70.0	66.0	46.0	D.
812 Aug. 18	11.30 a. m.				Cuttyhunk Light, N.E. by E., 12½ miles	NW., 4 mile	28½	do	70.0	67.0	46.0	T.
813 Aug. 18	11.55				Block Island Light, N.N.W., 4 W., 20 miles.	SE., 4 mile	27½	Sand and gravel	72.0	72.0	46.0	T.
814 Aug. 18	1.00 p. m.				Block Island Light, N.N.W., 3 W., 18 miles.	SW., 4 mile	29	Fine sand	72.0	72.0	48.0	R.D.
815 Aug. 18	2.15				Block Island Light, N.W. by N., 17 miles.	SE., 4 mile	8½	Sand and broken shells	71.0	69.0	66.0	D.
816 Aug. 23	10.25 a. m.				Narragansett Bay: Brenton's Reef Light-ship, E. 3 S., 23 miles.	SE., 4 mile	10	do	72.0	68.0	63.0	D.
817 Aug. 23	11.00				Brenton's Reef Light-ship, E. 3 N., 3 miles.	SE., 4 mile	9½	do	72.0	68.0	63.0	D.
818 Aug. 23	11.20				Brenton's Reef Light-ship, E. 3 N., 3 miles.	SE., 4 mile	6	Mud and broken shells	74.0	73.0	70.0	T.
819 Aug. 23	1.00 p. m.				South end Hope Island, SE. by E., ½ E., 4 mile.	W. by S., 4 mile.	5½	do	76.0	72.0	70.0	T.
820 Aug. 23	1.40				South end Hope Island, N.N.E., 4 mile.	SW., 4 mile	4½	do	78.0	72.0	70.0	T.
821 Aug. 23	2.15				South end Hope Island, N. by E., 4 mile.	W., 3 mile.	15½	Sand	74.0	63.0	60.0	D.
822 Aug. 23	3.60				South end Hope Island, N.E., 3 mile.	NW., 4 mile	13	do	74.0	65.0	67.0	T.
823 Aug. 24	12.35				North of Block Island: North Light of Block Island, W. ½ S., 1½ miles.	NW., 4 mile						
824 Aug. 24	12.50				North Light of Block Island, SW. ½ W., 1 mile.	NW., 4 mile						

825	Aug. 24	1. 30	North Light of Block Island, W. S.W. $\frac{3}{4}$ W., 14 miles.	NW, $\frac{1}{4}$ mile	13	do	73.0	67.0	60.0	O. T.
826	Aug. 24	2. 40	North Light of Block Island, W. NW. $\frac{1}{2}$ W., 24 miles.	S. SW., $\frac{1}{4}$ mile	22	do	73.0	67.0	57.0	D.
827	Aug. 24	3. 05	North Light of Block Island, W. NW. $\frac{1}{2}$ W., 24 miles.	E. NE., $\frac{1}{4}$ mile	20 $\frac{1}{2}$	do	71.0	67.0	57.0	B. T.
828	Aug. 25	12. 40	North Light of Block Island, SW. by W. $\frac{3}{4}$ W., 24 miles.	E. NE., $\frac{1}{4}$ mile	15	do	70.0	66.0	60.0	D.
829	Aug. 27	10. 45 a. m.	Comorant Rock, N. W. by N., $\frac{1}{4}$ mile	S. by E., $\frac{1}{4}$ mile	9	Gravel and stones.	61.0	66.0	65.0	D.
830	Aug. 27	11. 15	West Island, SE. by E., $\frac{1}{4}$ mile	NE. $\frac{1}{4}$ E., $\frac{1}{4}$ mile	10 $\frac{1}{2}$	Sand and gravel.	64.0	66.0	63.0	D.
831	Aug. 27	12. 30 p. m.	Sakonnet River, R. I.	S., $\frac{1}{4}$ mile	6	Dark, soft fetid mud	68.0	71.0	71.0	D.
832	Aug. 27	12. 45	North end of Gould Island, SW. $\frac{1}{4}$ W., 350 yards.	S., $\frac{1}{4}$ mile	9	do	70.0	71.0	71.0	D.
833	Aug. 27	1. 00	South end of Gould Island, W., 100 yards.	S., $\frac{1}{4}$ mile	6 $\frac{1}{2}$	do	70.0	71.0	71.0	R. D.
834	Aug. 27	1. 30	McCurry's Point, W. SW., $\frac{1}{4}$ mile	N. by E., $\frac{1}{4}$ mile	11	do	68.0	73.0	71.0	R. D.
835	Aug. 27	1. 50	McCurry's Point, N. E., 14 miles	N., $\frac{1}{4}$ mile	31	Soft mud and broken shells.	63.0	73.0	71.0	R. D.
836	Aug. 27	2. 25	Black Point, W. $\frac{1}{4}$ N., $\frac{1}{4}$ mile	S. SW., $\frac{1}{4}$ mile	5	Sand	66.0	71.0	71.0	R. D.
837	Aug. 27	2. 45	Black Point, NW. by W., $\frac{1}{4}$ mile	S. by E., $\frac{1}{4}$ mile	5	do	69.0	71.0	71.0	T.
838	Aug. 27	3. 15	Wood's Castle, W. by N., 1 mile.	S. by E., $\frac{1}{4}$ mile	5 $\frac{1}{2}$	do	66.0	70.0	68.0	T.
839	Aug. 31	9. 50 a. m.	Narragansett Bay,	SW., $\frac{1}{4}$ mile	27 $\frac{1}{2}$	Gravel and sand	67.0	67.0	61.0	D.
840	Aug. 31	10. 05	Dumplings, N. by W., $\frac{1}{4}$ W., 100 yards.	SW., $\frac{1}{4}$ mile	20 $\frac{1}{2}$	do	67.0	67.0	61.0	D.
841	Aug. 31	10. 45	Goat Island Light, NE. by E., $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	S., $\frac{1}{4}$ mile	21	Mud, sand, large stones	68.0	67.0	60.0	D.
842	Aug. 31	11. 00	Goat Island Light, E. NE., $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	N., $\frac{1}{4}$ mile	8	Sand	69.0	67.0	67.0	D.
843	Aug. 31	12. 00 p. m.	North end Dyer's Island, NE. $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	N., $\frac{1}{4}$ mile	14 $\frac{1}{2}$	do	69.0	69.0	63.0	T.
844	Aug. 31	12. 30 p. m.	North end Dyer's Island, SE. $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	W. SW., $\frac{1}{4}$ mile	11 $\frac{1}{2}$	do	70.0	69.0	63.0	T.
845	Aug. 31	1. 00	Prudence Light, N. $\frac{1}{4}$ W., $\frac{1}{4}$ mile	E. NE., $\frac{1}{4}$ mile	14 $\frac{1}{2}$	Gravel	70.0	69.0	64.0	T.
846	Aug. 31	1. 35	Prudence Light, N. by E., $\frac{1}{4}$ E., 14 miles.	N. NE., $\frac{1}{4}$ mile	14 $\frac{1}{2}$	Sandy mud and broken shells	70.0	68.0	63.0	R. D.
847	Aug. 31	2. 15	Half-Way Rock, N. $\frac{1}{4}$ W., 1 mile	N. NE., $\frac{1}{4}$ mile	12 $\frac{1}{2}$	Mud	70.0	68.0	62.0	T.
848	Aug. 31	3. 00	Bishop's Rocks, E., $\frac{1}{4}$ mile.	SW., $\frac{1}{4}$ mile	15 $\frac{1}{2}$	Mud	67.0	68.0	62.0	T.
849	Sept. 1	9. 20 a. m.	Fort Dumpling, W. NW., $\frac{1}{4}$ W., $\frac{1}{4}$ mile	SW., $\frac{1}{4}$ mile	20	Sand, gravel, stones	67.0	67.0	63.0	R. D.
850	Sept. 1	9. 40	Fort Dumpling, E. NE., $\frac{1}{4}$ E., $\frac{1}{4}$ mile	SW., $\frac{1}{4}$ mile	14 $\frac{1}{2}$	Sand and shells	67.0	67.0	63.0	R. D.
851	Sept. 1	10. 00	Beaver Tail Light, SW. $\frac{1}{4}$ W., 14 miles	S., $\frac{1}{4}$ mile	12 $\frac{1}{2}$	Sand and gravel	66.0	67.0	66.0	R. D.
852	Sept. 1	10. 35	Beaver Tail Light, SW. $\frac{1}{4}$ W., 24 miles	S., $\frac{1}{4}$ mile	12 $\frac{1}{2}$	Sand	67.0	67.0	66.0	T.
853	Sept. 1	10. 50	Beaver Tail Light, SW. $\frac{1}{4}$ S., 2 miles	S., $\frac{1}{4}$ mile	4 $\frac{1}{2}$	Sand	68.0	67.0	67.0	T.
854	Sept. 1	11. 10	Beaver Tail Light, SW. $\frac{1}{4}$ S., 14 miles	S., $\frac{1}{4}$ mile	6	Sand	69.0	67.0	67.0	T.
855	Sept. 1	11. 40	Beaver Tail Light, SW. $\frac{1}{4}$ S., 14 miles	S., $\frac{1}{4}$ mile	3 $\frac{1}{2}$	Sand	70.0	68.0	68.0	T.
856	Sept. 1	12. 05 p. m.	Beaver Tail Light, SW. $\frac{1}{4}$ W., 13 miles	S. SE., $\frac{1}{4}$ mile	11	Sand, gravel, shells	69.0	68.0	67.0	R. D.
857	Sept. 1	12. 35	Beaver Tail Light, W. SW., $\frac{1}{4}$ W., $\frac{1}{4}$ mile.	SE., $\frac{1}{4}$ mile	19	Sand	69.0	63.0	66.0	R. D.
858	Sept. 1	1. 05	Beaver Tail Light, W. NW., $\frac{1}{4}$ W., $\frac{1}{4}$ mile.	E., $\frac{1}{4}$ mile	14	Coarse sand, broken shells	61.0	63.0	66.0	R. D.
859	Sept. 3	11. 20 a. m.	Vineyard Sound	W., $\frac{1}{4}$ mile	17 $\frac{1}{2}$	Sand and mud	68.0	66.0	63.0	R. D.
860	Sept. 3	11. 55	Cuttyhunk Light, N. $\frac{1}{4}$ W., 3 miles	W., $\frac{1}{4}$ mile	17 $\frac{1}{2}$	do	70.0	66.0	64.0	R. D.
861	Sept. 3	12. 20 p. m.	Cuttyhunk Light, N. $\frac{1}{4}$ W., 3 miles	W., $\frac{1}{4}$ mile	17 $\frac{1}{2}$	Sand	69.0	66.0	61.0	T.
862	Sept. 3	12. 55	Cuttyhunk Light, N., 4 miles	S., $\frac{1}{4}$ mile	17	do	68.0	66.0	64.0	T.
863	Sept. 3	1. 40	Cuttyhunk Light, N. $\frac{1}{4}$ E., 34 miles	S., $\frac{1}{4}$ mile	18	Sand and mud	70.0	67.0	65.0	R. D.
864	Sept. 3	3. 00	Gay Head Light, S. SW., $\frac{1}{4}$ W., 5 $\frac{1}{2}$ miles.	S., $\frac{1}{4}$ mile	13	Sand and broken shells	70.0	67.0	61.0	D.

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

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									Air.	Surf. Bot- tom.	
865	1880. Sept. 4	5.40 a.m.	40 05	70 23	Atlantic Ocean;	E.N.E. $\frac{1}{2}$ mile.	65	Compact fine sand and mud.	71.0	73.0	68.5 T.
866	Sept. 4	6.30	40 05 18	70 22 18	Off Martha's Vineyard.	N.E. by E. $\frac{1}{2}$ mile.	65	Fine sand and mud	73.0	73.0	68.5 T.
867	Sept. 4	7.04	40 05 42	70 22 06	do	E.S.E. $\frac{1}{2}$ mile.	64	Compact hard sand and broken shells.	73.0	73.0	53.0 R. D.
868	Sept. 4	8.23	40 01 42	70 22 30	do	N.W. $\frac{3}{4}$ mile.	162	Fine sand and black specks.	75.0	75.0	47.0 T.
869	Sept. 4	9.27	40 02 18	70 23 06	do	N.N.E. $\frac{1}{2}$ mile.	192	Fine sand	80.0	76.0	50.0 T.
870	Sept. 4	10.57	40 02 36	70 22 58	do	W. by N. 1 mile.	155	Mud and fine sand	80.0	77.0	50.0 T.
871	Sept. 4	11.40	40 02 54	70 23 40	do	N.N.W. $\frac{3}{4}$ mile.	115	Mud and fine sand	84.0	76.5	49.0 T.
872	Sept. 4	12.45 p.m.	40 05 39	70 23 52	do	N.W. by N. $\frac{1}{2}$ mile.	86	Sand, gravel, shells, and sponges.	81.0	77.0	50.5 T.
873	Sept. 13	5.36 a.m.	40 02	70 57	do	N.W. by N. $\frac{1}{2}$ mile.	100	Soft sticky mud	68.0	69.5	51.0 T.
874	Sept. 13	6.26	40 00 00	70 57 00	do	N.W. $\frac{3}{4}$ mile.	85	do	70.0	70.0	51.0 T.
875	Sept. 13	7.51	39 57 00	70 57 30	do	N.E. $\frac{1}{2}$ mile.	126	do	70.0	70.0	53.0 T.
876	Sept. 13	8.45	39 57 00	70 56 00	do	N. $\frac{3}{4}$ mile.	120	do	68.0	70.0	53.0 T.
877	Sept. 13	9.40	39 56 00	70 54 18	do	N.N.W. $\frac{3}{4}$ mile.	126	do	71.0	71.0	57.0 T.
878	Sept. 13	11.00	39 55 00	70 54 15	do	N.W. $\frac{3}{4}$ mile.	147 $\frac{1}{2}$	Mud	72.0	71.0	52.0 T.
879	Sept. 13	1.20 p.m.	39 49 30	70 54 00	do	N. by W. $\frac{3}{4}$ mile.	225 $\frac{1}{2}$	Sand and blue mud	73.0	71.5	42.0 T.
880	Sept. 13	3.12	39 48 30	70 54 00	do	W. by N. $\frac{3}{4}$ mile.	254 $\frac{1}{2}$	Mud	74.0	71.5	43.0 T.
881	Sept. 13	3.00	39 46 30	70 54 00	do	W.N.W. $\frac{3}{4}$ mile.	325	do	70.0	71.0	42.0 T.
882	Sept. 17	10.56 a.m.			Narragansett Bay:						
883	Sept. 17	11.35			Halfway Rock, N. N.E. $\frac{1}{2}$ E., 2 $\frac{3}{4}$ miles.	SW. $\frac{1}{2}$ mile.	12 $\frac{1}{2}$	Mud	68.0	65.0	67.0 T.
884	Sept. 17	2.10 p.m.			Halfway Rock, N.E. by N., 2 $\frac{1}{2}$ miles.	SW. $\frac{3}{4}$ mile.	13	do	70.0	65.0	63.5 T.
885	Sept. 17	3.15			Hope Island, N.E. $\frac{1}{2}$ E., 200 yards.	SW. $\frac{1}{2}$ mile.	5	do	72.0	65.0	63.5 R. D.
					Gould Island, N. by E. $\frac{1}{2}$ E., $\frac{1}{2}$ mile.	S. $\frac{1}{2}$ mile.	16	Mud and shells	71.0	69.0	65.0 O. T.
886	Sept. 21	12.49			Off Block Island:						
					South Light of Block Island, N. $\frac{1}{2}$ E., 5 $\frac{1}{2}$ miles.	N. $\frac{1}{2}$ mile.	19	Shells and coarse gravel	67.0	64.0	62.0 D.
887	Sept. 21	1.30			South Light of Block Island, N. $\frac{1}{2}$ W., 5 $\frac{1}{2}$ miles.	W. $\frac{3}{4}$ mile.	19	do	67.0	64.0	62.0 T.
888	Sept. 21	2.00			South Light of Block Island, N. by E., 6 miles.	W. $\frac{1}{2}$ miles.	19	do	68.0	64.0	62.0 T.
889	Sept. 21	3.50			South Light of Block Island, W. $\frac{1}{2}$ S., 5 miles.	W.S.W., $\frac{1}{2}$ mile.	11	Hard sand and rocks	68.0	64.0	61.5 D.
890	Sept. 21	4.15			South Light of Block Island, W. $\frac{1}{2}$ S., 4 $\frac{1}{2}$ miles.	W.S.W., $\frac{1}{2}$ mile.	11	do	68.0	64.0	61.5 D.
891	Oct. 2	6.00 a.m.	39 46 00	71 10 00	Atlantic Ocean, off Martha's Vineyard	N. $\frac{1}{2}$ mile.	480?	Soft, brown mud	69.0	67.0	65.0 T.
892	Oct. 2	8.46	39 46 00	71 05 00	do	N.N.E., 2 miles.	487	Soft, brown mud and small stones.	64.0	65.0	65.0 T.
893	Oct. 2	11.23	39 52 10	70 58 00	do	N. 1 mile.	372	do	63.0	64.0	40.0 T.
894	Oct. 2	1.10 p.m.	39 53 00	70 58 30	do	N. $\frac{1}{2}$ miles.	365	do	63.0	64.0	40.0 T.

895	Oct. 2	3. 17	39 56 30	70 59 45	do	N. 1½ miles W. N.W. ½ mile.	298	Soft mud.	62.0	65.0	42.0	T.
896	Nov. 16	9. 20 a.m.	37 26 00	74 19 00	Atlantic Ocean, off mouth of Chesapeake Bay.		56	Sand, shells	52.0	62.0	55.0	T.
897	Nov. 16	10. 10	37 25 00	74 18 00	do	W, 1 mile	157½	Sand, mud	62.0	69.0	48.0	T.
898	Nov. 16	11. 25	37 24 00	74 17 00	do	SW, ½ mile	309	Mud	60.0	62.0	44.0	T.
899	Nov. 16	1. 55 p.m.	37 22 00	74 29 00	do	SW, ½ mile	57½	Sand	58.0	61.0	54.0	T.
900	Nov. 16	4. 00	37 19 00	74 41 00	do	W, ½ mile	31	Sand	55.0	59.0	56.0	T.
901	Nov. 16	7. 15	37 10 00	75 08 00	do	W, ½ mile	18	do	53.0	60.0	.....	T.
902	} 1881.	.....	.....	.....	Shallow water dredgings on oyster beds, off Port Lookout, Potomac River, Virginia, by the Fish Hawk.							
916		.....	.....	.....	Atlantic Ocean, off Martha's Vineyard							
917	July 16	4. 10 a.m.	40 22 00	70 42 00	do	N.E., ¾ mile	44	Green mud	66.0	63.0	42.0	T.
918	July 16	5. 33	40 20 24	70 41 30	do	N.N.E., 1 mile	46	do	67.0	63.0	42.0	T.
919	July 16	7. 00	40 16 18	70 41 18	do	N.E., 1 mile	63	do	70.0	66.0	42.5	T.
920	July 16	8. 20	40 13 00	70 41 51	do	W. by S., 1 mile	63	do	72.0	60.0	43.0	T.
921	July 16	9. 40	40 07 48	70 43 54	do	W, 1 mile	67	do	73.0	70.0	52.0	T.
922	July 16	10. 57	40 03 48	70 45 51	do	N. by W., 1 mile	71	Green mud and sand	76.0	72.0	52.0	T.
923	July 16	12. 57 p.m.	40 01 24	70 46 00	do	W.N.W., ½ miles	98	Sand	74.5	72.0	52.0	T.
924	July 16	1. 52	39 57 30	70 46 00	do	N.W., 2 miles	104	do	74.5	71.0	44.5	T.
925	July 16	3. 35	39 55 00	70 47 00	do	N.W. by W., 1½ miles.	229	Sand and mud	74.0	71.0	42.0	T.
926	July 16	5. 24	39 56 00	70 46 00	do	N.W. ¾ N., 2½ miles.	199	do	74.0	71.0	44.0	T.
927	July 20	10. 47 a.m.	.....	.....	Vineyard Sound:							
928	July 20	11. 30	.....	.....	Menemsha Blight; Gray Head Light, W. by S. ¾ S., 2½ miles.		11	Sand	68.0	62.0	59.0	T.
929	July 20	12. 35 p.m.	.....	.....	Gray Head Light, W. ¼ S., 2½ miles.		10	do	69.0	62.5	60.0	T.
930	July 20	1. 10	.....	.....	Off Quick's Hole; Gray Head Light, S. by W., 4 miles		10	do	66.0	63.0	62.0	D.
931	July 20	1. 42	.....	.....	Gray Head Light, S. by W., 4 miles		12	Sand and shells	65.0	63.0	62.0	D.
932	July 20	2. 43	.....	.....	Off Robinson's Hole; Gray Head Light, S.W. by S. ½ S., 5½ miles.		16	do	65.0	63.0	62.0	D.
933	July 20	3. 30	.....	.....	Off Lackey's Bay; Tarpaquin Cove Light, W. by S. ¾ S., 3 miles.		14	Rock	67.0	66.0	66.0	D.
934	July 20	4. 10	.....	.....	West Chop Light, S. ¾ E., ¼ mile		14	Stones	68.0	65.0	61.0	D.
935	Aug. 4	8. 14 a.m.	39 45 00	69 44 45	Nobska Light, W. ¼ S., 1¼ miles.		9	Sand and gravel	68.0	67.0	67.0	T.
936	Aug. 4	10. 43	39 46 30	69 47 00	Atlantic Ocean:							
937	Aug. 4	12. 45 p.m.	39 49 25	69 49 00	Off Martha's Vineyard		782	Green mud and sand	72.0	70.0	39.5	T.
938	Aug. 4	2. 44	39 51 00	69 49 15	do	N.W. ¾ N., 2½ miles	716	Green mud	78.0	71.0	39.5	T.
939	Aug. 4	4. 25	39 53 00	69 50 30	do	N.W. ¾ W., 2 miles	616	Green mud and sand, with lumps of clay.	73.0	72.0	40.5	T.
940	Aug. 4	5. 30	39 54 00	69 51 30	do	N.N.W., 1 mile	317	Green mud and sand	80.0	72.5	42.0	T.
941	Aug. 4	7. 45	40 01 00	69 56 00	do	N.N.W., 1½ miles	264	do	78.0	73.0	47.0	T.
942	Aug. 9	6. 15 a.m.	40 01 00	71 12 30	do	N.W. by W., 2 miles	134	Hard sand and sponges	76.0	72.0	52.0	T.
943	Aug. 9	7. 10	40 00 00	71 14 30	do	N.W. by N., 2½ miles.	79	Hard sand and mud	74.0	71.0	52.0	T.
							158	do	72.0	69.0	50.0	D.
							157	Mud, sand, and shells	76.0	70.0	49.0	D.

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bot- tom.	
944	1881. Aug. 9	8.27 a.m.	40 01 00	71 14 30	Atlantic Ocean: Off Martha's Vineyard	NW. by N., 1½ miles.	128	Mud, sand, and shells	78.0	70.0	51.0	T.
945	Aug. 9	12.05 p.m.	39 58 00	71 13 00	do	NW. by N., 2 miles.	207	Green mud and sand	75.0	71.0	44.0	T.
946	Aug. 9	2.00	39 55 30	71 14 00	do	NW. by W., 1½ miles.	247	do	75.5	71.0	47.0	T.
947	Aug. 9	4.00	39 53 30	71 13 30	do	WNW., 3 miles.	319	Sand and mud	75.0	70.0	44.0	T.
948	Aug. 13	5.29			Buzzard's Bay: Penikese Island east, 2 miles.	W.SW., 1 mile.	7	Black mud and shells	76.6	67.0	66.0	T.
949	Aug. 23	4.20 a.m.	40 03 00	70 31 00	Atlantic Ocean: Off Martha's Vineyard	N.N.W., 2 miles.	160	Yellow mud	68.0	66.0	52.0	R.D.
950	Aug. 23	5.50	40 07 00	70 32 00	do	N.N.W., 1½ miles.	71	Sand, shells, and mud	69.0	65.0	52.0	T.
951	Aug. 23	9.40	39 57 00	70 31 30	do	N.W. ¼ mile.	225	Mud	78.0	67.5	41.0	T.
952	Aug. 23	11.18	39 55 00	70 28 00	do	NE. by N., 1½ miles.	396	Yellow mud and sand	82.0	68.0	40.0	T.
953	Aug. 23	2.30 p.m.	39 52 30	70 17 30	do	N.N.W., 1½ miles.	754	Mud	77.0	68.0	39.5	T.
954	Aug. 23	4.50	39 53 00	70 18 30	do	N.N.W., 2 miles.	651	Sand and mud	74.5	68.0	39.5	T.
955	Aug. 26	10.50 a.m.			Buzzard's Bay: Nye's Neck, E. by S., ¼ mile.	W. by S., 4 S., ½ mile.	7	Sand	69.0	67.5	68.0	T.
956	Aug. 26	11.26			Nye's Neck, S. SE. ¾ E., ¼ mile.	W. by S., ¼ mile.	5½	do	71.0	69.0	62.0	T.
957	Aug. 26	11.45			Nye's Neck, S. SE. ¾ E., ¼ mile.	W. ¾ N., ¼ mile.	6	Sand and stones	73.0	69.5	68.0	T.
958	Aug. 26	12.30 p.m.			Nye's Neck, S. by E., ½ mile.	W.S.W., ¼ mile.	5	Sand, stones, shells	75.0	70.0	68.0	T.
959	Aug. 26	12.40			Nye's Neck, S. ¾ mile.	West ½ mile.	5	do	72.0	69.0	68.0	T.
960	Aug. 26	1.10			Nye's Neck, S. ¾ E., ½ mile.	SW. by W., ½ mile.	4½	do	72.5	69.5	68.0	T.
961	Aug. 26	1.52			Nye's Neck, NE. ¾ E., 2½ miles.	W. by S., ¾ mile.	8	Black mud	71.5	69.0	68.0	T.
962	Aug. 26	3.10			Woopocket Island, NE. ¼ E., 1¼ miles.	W.NW., ¾ mile.	8½	Black mud, sand	71.0	68.0	66.0	T.
963	Aug. 26	3.40			Woopocket Island, SE. ¾ S., 1 mile.	W.S.W., ¾ mile.	8½	Brown mud	70.0	68.0	66.0	D.
964	Aug. 30	7.50 a.m.			Off Chatham, Cape Cod (Grab Ledge): Chatham Lights, NW. ¾ W., 5 miles.	S. SE., ¼ mile.	10	Sand, gravel	65.0	61.0	55.0	D.
965	Aug. 30	8.15			Chatham Lights, NW. ¾ W., 6 miles.	SE. by E., ¾ mile.	15	do	65.0	61.0	53.0	D.
966	Aug. 30	8.40			Chatham Lights, NW. by W. ¾ W., 6 miles.	SE., ¼ mile.	16	Sand, small stones	65.0	61.0	52.0	D.
967	Aug. 30	8.50			Chatham Lights, NW. by W. ¾ W., 6 miles.	SE., ¼ mile.	16	Sand, gravel	66.0	61.0	52.0	D.
968	Aug. 30	9.00			Chatham Lights, NW. by W. ¾ W., 7½ miles.	NW. by W., ¾ mile.	18	Gravel	66.0	61.5	50.5	D.
969	Aug. 30	9.10			Chatham Lights, NW. by W. ¾ W., 7 miles.	SE., ¼ mile.	18	Sand pebbles	66.0	61.5	51.0	D.
970	Aug. 30	9.43			Chatham Lights, W.NW. ¾ W., 6 miles.	W.NW., ¾ mile.	13	do	67.0	61.0	54.0	D.
971	Aug. 30	10.05			Chatham Lights, W. ¾ N., 4½ miles.	S. SE., ¼ mile.	11	Sand, gravel, pebbles	67.0	61.5	54.0	D.

	Aug. 30	10.48		Chatham Lights, NW. by W. $\frac{3}{4}$ W., 7 $\frac{1}{2}$ miles	NE., $\frac{1}{2}$ mile	16	Sand, gravel, stones	67.0	62.0	52.0	D.
972	Aug. 30	11.10		Chatham Lights, W.N.W., $\frac{1}{2}$ miles	W.S.W., $\frac{1}{2}$ mile	17	do	67.0	61.0	51.0	D.
973	Aug. 30	11.30		Chatham Lights, W.N.W., $\frac{1}{4}$ W., 6 $\frac{1}{2}$ miles	W.S.W., $\frac{1}{2}$ mile	16	do	67.0	62.0	51.0	D.
974	Aug. 30	11.45		Chatham Lights, W.N.W., $\frac{1}{4}$ W., 6 $\frac{1}{2}$ miles	W.S.W., $\frac{1}{2}$ mile	16	do	68.0	63.0	51.0	D.
975	Aug. 30	12.00 m.		Chatham Lights, W.N.W., $\frac{1}{4}$ W., 6 miles	N. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	16	do	68.0	61.0	52.0	D.
976	Aug. 30	12.20 p.m.		Chatham Lights, W.N.W., $\frac{1}{4}$ W., 6 miles	W. by N., $\frac{1}{4}$ mile	17	do	70.0	61.0	52.0	D.
977	Aug. 30	12.30		Chatham Lights, W.N.W., $\frac{1}{4}$ W., 6 miles	W. by N., $\frac{1}{4}$ mile	17	do	70.0	64.0	52.0	D.
978	Aug. 30	12.40		Chatham Lights, W.N.W., $\frac{1}{4}$ W., 6 miles	W. by N., $\frac{1}{4}$ mile	16	Sand	70.0	61.0	52.0	D.
979	Aug. 30	1.00		Chatham Lights, NW. by W. $\frac{3}{4}$ W., 6 $\frac{1}{2}$ miles	SW., $\frac{1}{2}$ mile	14	Sand, stones, pebbles	70.0	62.0	53.0	D.
980	Aug. 30	2.10		Chatham Lights, W.N.W., 10 miles	S. $\frac{1}{2}$ W., 1 $\frac{1}{2}$ miles	43	Sand, gravel	65.0	63.5	49.0	T.
981	Aug. 30	2.45		Off Chatham, Cape Cod	S. $\frac{1}{2}$ W., 1 $\frac{1}{2}$ miles	42	do	65.0	63.5	41.5	T.
982	Aug. 30	3.23		do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	33	Sand	64.5	64.0	42.0	T.
983	Aug. 30	4.07		do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	33	Mud and sand	64.5	63.5	41.5	T.
984	Aug. 30	4.30		Atlantic Ocean:							
985	Sept. 7	12.55 p.m.		Off Martha's Vineyard	SW. by S., 1 $\frac{1}{2}$ miles	26	Sand	73.0	66.0	50.0	T.
986	Sept. 7	2.00		do	S. $\frac{1}{2}$ W., 1 mile	28	do	73.0	67.0	49.0	T.
987	Sept. 7	2.28		do	S. $\frac{1}{2}$ W., 1 mile	28	do	73.0	67.0	49.0	R.D.
988	Sept. 7	3.30		do	S. $\frac{1}{2}$ W., 1 mile	30	do	73.0	67.0	49.5	R.D.
989	Sept. 7	4.00		do	S. $\frac{1}{2}$ W., 1 mile	30	do	73.0	67.0	49.5	T.
990	Sept. 7	5.08		do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	34	Green mud and sand	71.5	66.0	47.0	T.
991	Sept. 7	6.05		do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	34	do	70.0	66.0	47.5	T.
992	Sept. 7	7.30		do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	36	do	69.0	65.0	48.0	T.
993	Sept. 7	8.20		do	S. $\frac{1}{2}$ W., $\frac{1}{2}$ mile	39	Mud	69.0	65.0	46.5	T.
994	Sept. 8	4.50 a.m.		do	W.N.W., 2 miles	368	do	72.0	68.0	40.5	T.
995	Sept. 8	6.32		do	W.N.W., $\frac{1}{2}$ mile	358	Yellow mud and sand	72.0	68.0	40.5	T.
996	Sept. 8	7.35		do	N. by W., $\frac{1}{2}$ mile	346	do	75.0	67.5	40.0	R.D.
997	Sept. 8	9.03		do	N. by W., 1 mile	335	Yellow mud	75.0	67.5	40.0	T.
998	Sept. 8	10.34		do	N., 1 $\frac{1}{2}$ miles	302	Green mud	74.0	68.0	40.0	T.
999	Sept. 8	11.48		do	N.N.W., $\frac{1}{2}$ mile	296	do	73.0	68.0	.....	R.D.
1000				(Dredgings by steamer Lookout. Nos. 1006 to 1013, close off Gay Head; 1014 N. of Lucas Shoal, Vineyard Sound.)							
1001				Atlantic Ocean:							
1002				Off Martha's Vineyard	N. $\frac{1}{2}$ E., 1 mile	216	do	71.0	69.0	45.0	T.
1025	Sept. 8	1.05 p.m.		do	N. by E., 1 $\frac{1}{2}$ miles	182	Green mud, sand	69.0	69.0	47.5	T.
1026	Sept. 8	2.55		do	N., $\frac{1}{2}$ mile	93	Fine sand	61.0	63.0	48.5	T.
1027	Sept. 14	7.23 a.m.		do	N. $\frac{1}{2}$ E., $\frac{1}{2}$ mile	410	Yellow mud	66.5	60.0	41.0	T.
1028	Sept. 14	9.01		do	N. $\frac{1}{2}$ E., $\frac{1}{2}$ mile	458	Yellow mud, sand	72.0	68.0	40.0	T.
1029	Sept. 14	12.13 p.m.		do	N. $\frac{1}{2}$ E., by N., 1 mile	337	Yellow mud	65.0	66.0	41.0	R.D.
1030	Sept. 14	1.52		do	N. by W., 1 $\frac{1}{2}$ miles	255	do	64.0	65.0	46.0	T.
1031	Sept. 14	2.54		do	N.W. by N., 1 $\frac{1}{2}$ miles	208	do	65.0	65.0	46.0	T.
1032	Sept. 14	4.00		do	N.W., $\frac{1}{2}$ mile	183	Sand, gravel	66.0	63.0	46.0	T.
1033	Sept. 14	4.55		do	N.N.W., 2 miles	146	Sand and yellow mud	66.0	62.0	46.5	T.
1034	Sept. 14	5.55		do	N.N.W., $\frac{1}{2}$ mile	120	Sand	63.0	62.0	47.0	T.
1035	Sept. 14	6.56		do	N., $\frac{1}{2}$ mile	94	do	62.0	61.5	51.0	R.D.
1036	Sept. 14	7.54		do	N.N.W., 1 $\frac{1}{2}$ miles						

Dredging stations of the steamer Fish Hawk for 1880, 1881, and 1882—Continued.

Serial num.	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.		Apparatus used.
									Air.	Surf. Bot- tom.	
1637	1881. Sept. 15	8.00 a. m.	0 1 "	0 1 "	Off Gay Head, Martha's Vineyard: Gay Head Light, N.E. $\frac{1}{2}$ N., 4 miles. Atlantic Ocean:		16	Sand.			T.
1638	Sept. 21	6.55	39 58	70 05	Off Martha's Vineyard	N. by E., 1 mile	146	Sand and shells.	67.0	67.0	47.0
1639	Sept. 21	9.35	39 59	70 05	do	N. by E., 2 miles	130	do	66.5	67.0	50.0
1640	Sept. 21	10.43	40 00	70 05	do	N. by E., 2 miles	93	do	64.0	68.0	66.0
1641	Sept. 22	12.35 p. m.			Vineyard Sound, Mass.:						
1642	Sept. 22	1.17			West Chop Light, E. $\frac{1}{2}$ N., 1 $\frac{1}{2}$ miles.	W. SW. $\frac{1}{2}$ mile	9	Sand and gravel	63.5	65.0	65.0
1643	Oct. 10	7.17 a. m.	38 39	73 11	Atlantic Ocean: Off the Capes of Delaware	W. by N., $\frac{1}{2}$ mile	6	do	63.5	65.0	65.0
1644	Oct. 10	8.15	38 37	73 12	do	NW. by N., $\frac{1}{2}$ miles.	130	Sand.	63.5	65.5	49.0
1645	Oct. 10	9.32	38 35	73 13	do	W. NW. $\frac{1}{2}$ mile.	224	Gray mud	65.0	66.0	42.5
1646	Oct. 10	11.14	38 33	73 18	do	W. NW. $\frac{1}{2}$ mile.	313	do	67.0	66.0	40.0
1647	Oct. 10	12.15 p. m.	38 31	73 21	do	W. NW. $\frac{1}{2}$ mile.	104	Sand	66.0	63.0	51.0
1648	Oct. 10	1.55	38 29	73 21	do	W. NW. $\frac{1}{2}$ mile.	150	do	69.0	66.0	49.0
1649	Oct. 10	3.30	38 28	73 22	do	W. NW. $\frac{1}{2}$ mile.	435	Mud	71.0	66.0	40.0
1650	Feb. 27	2.00 p. m.			Chesapeake Bay:		435	do	68.0	66.0	40.0
1651	Feb. 27	2.15			Point No Point, N. N.E., 1 $\frac{1}{2}$ miles		3 $\frac{1}{2}$	Mud, shells, gravel	50.0	41.0	O. D.
1652	Feb. 27	2.30			Point No Point, N. by E., 1 mile		2 $\frac{1}{2}$	do	50.0	41.0	O. D.
1653	Feb. 27	2.45			Point No Point, N. N.E., $\frac{1}{2}$ mile		1 $\frac{1}{2}$	do	50.0	41.0	O. D.
1654	Feb. 27	2.50			Point No Point, N. by E., 1 $\frac{1}{2}$ miles		2 $\frac{1}{2}$	Mud, shells, oysters	50.0	41.0	O. D.
1655	Feb. 28	10.40 a. m.			Patuxent River, Maryland:						
1656	Feb. 28	10.55			Drum Point, N.E., $\frac{1}{2}$ mile		6	Brown mud, shells	46.0	40.0	D.
1657	Feb. 28	12.00 m.			Chesapeake Bay: Drum Point, N. N.E., $\frac{1}{2}$ mile		6	do	46.0	40.0	R. D.
1658	Feb. 28	12.10 p. m.			South end of Barren Island, E. by S., 1 $\frac{1}{2}$ miles.	W. NW. $\frac{1}{2}$ mile.	17-20	Brown mud	49.0	40.0	T.
1659	Feb. 28	12.30			South end of Barren Island, S.E. by E. $\frac{1}{2}$ E., 2 miles.	W. NW. $\frac{1}{2}$ mile.	3-25	do	49.0	40.0	T.
1660	Feb. 28	12.40			South end of Barren Island, S.E. $\frac{1}{2}$ E., 2 miles	W. NW. $\frac{1}{2}$ mile.	23-25	do	49.0	40.0	T.
1661	Mar. 2	11.20 a. m.			Smith's Point, S.W., 2 miles	S.E. by S., $\frac{1}{2}$ mile	7	Brown mud, shells	46.0	41.0	40.5
1662	Mar. 2	11.40			Smith's Point Light, S. by W. $\frac{1}{2}$ W., 1 $\frac{1}{2}$ miles.	S. $\frac{1}{2}$ mile.	11-16	do	46.0	41.5	41.5
1663	Mar. 2	1.35 p. m.			Smith's Point Light, S.W. $\frac{1}{2}$ S., 1 $\frac{1}{2}$ miles	S. by W., 1 mile	16-24	do	48.0	41.5	41.5
1664	Mar. 2	2.17			South point Tangier Island, N. by E. $\frac{1}{2}$ E., 2 $\frac{1}{2}$ miles.	N.E. by E. $\frac{1}{2}$ mile.	10	do	50.0	44.0	42.0
1665	Mar. 2	2.17			South point Tangier Island, N. NW., 1 mile.	N.E. by E. $\frac{1}{2}$ mile	20-25	do	50.0	42.0	42.0

1065	Mar. 6	9.00 a.m.	Cherry-stone Light, E. by N., 2 miles	25-12	Sand	56.0	45.0	46.5	T.
1066	Mar. 6	9.20	Cherry-stone Light, E. by S., 3 miles	12-55	do	56.0	45.0	47.0	T.
1067	Mar. 6	9.40	Cherry-stone Light, SE. by E. 4 E., 3 miles	12-59	do	56.0	45.0	47.0	T.
1068	Mar. 11	9.50 a.m.	Thomas Point Light, W. SW $\frac{1}{4}$ W., 2 miles	11-9	Black mud	49.0	42.0	41.0	T.
1069	Mar. 11	10.20	Thomas Point Light, SW. by W. $\frac{3}{4}$ W., 2 1/2 miles	18	do	51.0	42.0	40.0	T.
1070	Mar. 11	10.45	Thomas Point Light, W. by S., 2 miles	15-10	do	45.0	42.0	42.0	T.
1071	Mar. 11	11.22	Thomas Point Light, W. NW. $\frac{1}{2}$ W., 2 1/2 miles	14-12	do	49.0	42.0	46.0	T.
1072	Mar. 11	12.00 p.m.	Thomas Point Light, NW. $\frac{1}{4}$ miles	16	do	50.0	42.0	42.0	R.D.
1073	Mar. 11	12.25 p.m.	Thomas Point Light, NW. by N., 2 1/2 miles	13	Black mud, shells	50.0	42.0	42.0	R.D.
1074	Mar. 11	1.10	Thomas Point Light, N. by W. $\frac{1}{2}$ W., 4 1/2 miles	18-11	Black mud	51.0	43.0	41.0	T.
1075	Mar. 13	9.45 a.m.	Sandy Point Light, N. by W. $\frac{1}{4}$ W., 3 1/2 miles	14-11	Mud	45.0	43.0	40.0	T.
1076	Mar. 13	10.15	Sandy Point Light, N. by W. $\frac{1}{4}$ W., 3 1/2 miles	15	do	45.0	43.0	40.0	T.
1077	Mar. 13	10.55	Sandy Point Light, NW. $\frac{1}{4}$ W., 2 1/2 miles	11-12	do	49.0	43.0	40.0	T.
1078	Aug. 2	7.30 a.m.	Nauset Lights, NW. $\frac{1}{4}$ N., 10 miles	75	Green mud, fine sand	72.0	63.0	37.0	T.
1079	Aug. 2	8.40	Nauset Lights, NW. by W. $\frac{1}{4}$ W., 8 1/2 miles	61 1/2	Fine sand	69.0	63.5	37.0	T.
1080	Aug. 2	9.40	Nauset Lights, NW. by W. $\frac{1}{4}$ W., 6 1/2 miles	55	do	69.0	61.5	37.0	T.
1081	Aug. 2	10.50	Nauset Lights, W. by S., 5 1/2 miles	33 1/2	Coarse gravel and pebbles	69.0	59.0	39.0	T.
1082	Aug. 2	11.45	Cape Cod Light, NW. $\frac{1}{4}$ N., 11 1/2 miles	28	Coarse gravel	70.0	59.0	40.0	T.
1083	Aug. 2	12.45 p.m.	Cape Cod Light, W. by N., 15 miles	82 1/2	Coarse sand	77.0	64.0	38.0	T.
1084	Aug. 2	2.20	Race Point Light, W. NW. $\frac{1}{4}$ W., 8 miles	37 1/2	Fine sand, green mud	78.0	62.5	38.0	T.
1085	Aug. 3	6.15 a.m.	Race Point Light, S. by E., 2 miles	14 1/2	Fine sand	67.0	64.0	39.0	T.
1086	Aug. 3	7.00	Race Point Light, S. W. $\frac{1}{4}$ W., 2 1/2 miles	74	Fine sand	74.0	64.0	39.5	T.
1087	Aug. 3	8.30	Cape Cod Light, S. SW $\frac{1}{4}$ W., 7 miles	44	Gray sand	84.0	62.5	39.0	T.
1088	Aug. 3	9.50	Cape Cod Light, SW $\frac{1}{4}$ W., 9 1/2 miles	40	Coarse sand	82.5	62.0	38.0	T.
1089	Aug. 3	11.10	Cape Cod Light, SW. $\frac{1}{4}$ W., 14 miles	110	Gray mud	78.0	63.0	38.5	T.
1090	Aug. 3	11.50	Cape Cod Light, SW. $\frac{1}{4}$ W., 13 1/2 miles	110	do	81.5	62.0	38.5	T.
1091	Aug. 11	5.30 a.m.	Off Martha's Vineyard	65	Gray sand, broken shells	77.0	75.0	46.0	T.
1092	Aug. 11	6.54	do	292	Gray sand	79.0	75.0	41.0	T.
1093	Aug. 11	8.25	do	349	Blue mud, sand	82.0	75.0	40.0	T.
1094	Aug. 11	10.10	do	301	Blue mud	84.0	76.0	40.0	T.
1095	Aug. 11	11.55	do	321	Soft green mud	82.0	76.0	40.0	T.
1096	Aug. 11	1.19 p.m.	do	317	do	78.0	75.5	40.0	T.
1097	Aug. 11	3.19	do	158	Fine sand	76.0	75.5	45.0	T.
1098	Aug. 11	4.35	do	156	do	78.0	75.0	43.5	T.
1099	Aug. 18	11.06 a.m.	Vineyard Sound: Nohska Point Light, W. SW. $\frac{1}{4}$ W., 1 1/2 miles	6	Sand, gravel	76.0	72.0	71.5	T.
1100	Aug. 18	11.47	Nohska Point Light, W. SW. $\frac{1}{4}$ W., 1 1/2 miles	43	Sand, gravel, shells	77.0	72.0	71.5	T.

Dredging stations of the steamer Fish Hawk, for 1880, 1881, and 1882—Continued.

Serial num-ber.	Date.	Hour.	Latitude N.	Longi- tude W.	Locality.	Drift.	Depth in fathoms.	Nature of bottom.	Temperatures.			Apparatus used.
									Air.	Surf.	Bot- tom.	
1882					Vineyard Sound:							
1101 Aug. 18	12.15 p. m.				Nobles Point Light, W. by S. 1½ miles.	N.E. 1 mile.	5	Sand, gravel, shells.	78.0	72.0	71.0	T.
1102 Aug. 18	1.10				East Chop Light, N.W. ¾ W. 2½ miles.	E. by S. ¾ mile.	5	Coarse sand.	73.0	70.0	69.0	T.
1103 Aug. 18	1.42				East Chop Light, N.W. by W. ¾ 3 miles.	E. by S. ¾ mile.	5	do	73.0	70.0	69.0	T.
1104 Aug. 18	2.12				East Chop Light, W.N.W. ¾ W. 4 miles.	N. by W. ¾ W., ¾ mile.	8½	Shells.	73.0	70.0	69.0	T.
1105 Aug. 18	3.00				Cape Poge Light, S. by W. 4 miles.	N.E. by E. ¾ E., 2 miles.	10	Coarse sand.	80.0	72.0	71.0	T.
1106 Aug. 18	3.35				Cape Poge Light, S. by W. ¾ W. 5½ miles.	N.E. by N. 1 mile.	5	Sand, shells.	80.0	72.5	72.0	T.
1107 Aug. 22	6.00 a. m.				Off Martha's Vineyard	N.W. 1 mile.	116	Gray mud.	69.5	71.0	48.0	T.
1108 Aug. 22	6.55		40 02	70 35	do	N.W. ¾ mile.	101	Gray mud, fine sand.	69.5	71.0	48.0	T.
1109 Aug. 22	7.55		40 03	70 38	do	N.W.W. 1 mile.	89	Gray sand.	70.5	71.0	49.0	T.
1110 Aug. 22	9.16		40 02	70 35	do	N. by W. ¾ W., 1 mile.	100	Green mud, fine sand.	75.0	72.0	47.0	T.
1111 Aug. 22	10.45		40 01 33	70 35	do	N.N.E. ¾ E. 1 mile.	124	Fine sand.	76.0	72.0	47.0	T.
1112 Aug. 22	12.43 p. m.		39 56	70 35	do	N.W. by N. 1 mile.	245	Green mud, sand.	72.0	72.0	43.0	T.
1113 Aug. 22	1.45		39 57	70 37	do	N. 1 mile.	192	Green mud.	75.0	72.0	43.0	T.
1114 Aug. 22	2.40		39 58	70 38	do	S. by W. 1 mile.	171	do	74.0	72.0	43.0	T.
1115 Aug. 22	3.28		39 59	70 41	do	N. by N. ¾ mile.	146	Green mud, sand.	75.0	72.5	45.0	R. D.
1116 Aug. 22	4.20		39 59	70 44	do	N.W. by W. 1 mile.	144	do	77.0	72.0	46.0	T.
1117 Aug. 22	5.30		40 02	70 45	do	N. by E. 1 mile.	89	Fine sand.	78.0	72.0	48.0	T.
1118 Aug. 22	6.20		40 03	70 45	do	N.N.W. ¾ mile.	70	do	74.0	72.0	49.0	T.
1119 Aug. 26	6.32 a. m.		40 08	68 45	do	N.E. ¾ N. ¾ mile.	97	Sand, broken shells.	68.0	65.0	48.0	T.
1120 Aug. 26	7.41		40 05	68 48	do	N.W. 1½ miles.	194	Fine sand, stones.	69.0	65.0	43.5	T.
1121 Aug. 26	9.05		40 04	68 49	do	N.W.W. 1 mile.	234	do	65.0	65.0	41.5	T.
1122 Aug. 26	10.02		40 02	68 50	do	N.W. 1 mile.	351	do	70.0	67.0	40.5	T.
1123 Aug. 26	12.00 m.		39 59 45	68 54	do	N.N.W. 1 mile.	787	Fine sand, green mud.	70.0	69.0	39.0	T.
1124 Aug. 26	4.01 p. m.		40 01	68 54	do	N.W. by N. 1 mile.	640	Fine sand, green mud, lime- stone nodules.	65.0	65.0	39.0	T.
1125 Aug. 26	5.45		40 03	68 56	do	N.W. by W. 1 mile.	291	Sand, mud.	65.0	64.0	40.0	T.
1126 Aug. 28	1.46 p. m.				Vineyard Sound, Monksia Light:							
1127 Aug. 28	2.30				Gay Head Light-house, W.S.W. 2½ miles.	S.E. by E. ¾ mile.	14	Sand, black mud.	72.0	66.0	61.5	T.
1128 Aug. 28	3.10				Gay Head Light-house, W. by S. 3 miles.	E.S.E. ¾ mile.	10	Gray sand, mud.	66.0	61.0	61.0	T.
					Gay Head Light-house, W. ¾ S. 2½ miles.	S. by E. ¾ mile.	9	do	63.0	66.0	65.0	D.
					North of Noman's Land:							
1129 Sept. 2	2.00				Fishing Village, S. ¾ mile.	N.E. by E. ¾ mile.	4	Sand, stones.	72.0	65.0	62.0	D.
1130 Sept. 2	2.13				Fishing Village, S. ¾ E. 1 mile.	N.W. by N. ¾ mile.	4	do	72.0	65.0	62.0	D.
1131 Sept. 2	2.29				Fishing Village, S.E. by E. ¾ mile.	E. by N. ¾ mile.	4	do	72.0	63.0	63.0	D.

SCARCITY OF BLACKFISH—MORTALITY OF CODFISH.**By CHAS. C. LESLIE.**

[From letter to G. Brown Goode.]

For the past four or five years we have noticed the scarcity of blackfish in the summer, and especially this summer. The smacks here have not made their expenses for the past two months. I have just seen Capt. S. M. Corker, one of our expert blackfish fishermen, who has been in the business for thirty years. He tells me that he has never seen them so scarce as they are at present, and that in former years the fishermen were accustomed to catch enough to pay expenses during the summer. Captain Corker also tells me that about June 1 a vessel came into this port, and, according to the statement of her captain, she sailed through acres of codfish, floating belly up, between Hatteras and Cape Henry. The fish were not dead, but very weak.

CHARLESTON, S. C., *June 29, 1882.***SHAD FISHING ON THE SAINT JOHN'S RIVER.****By JOHN H. OSBORN.**

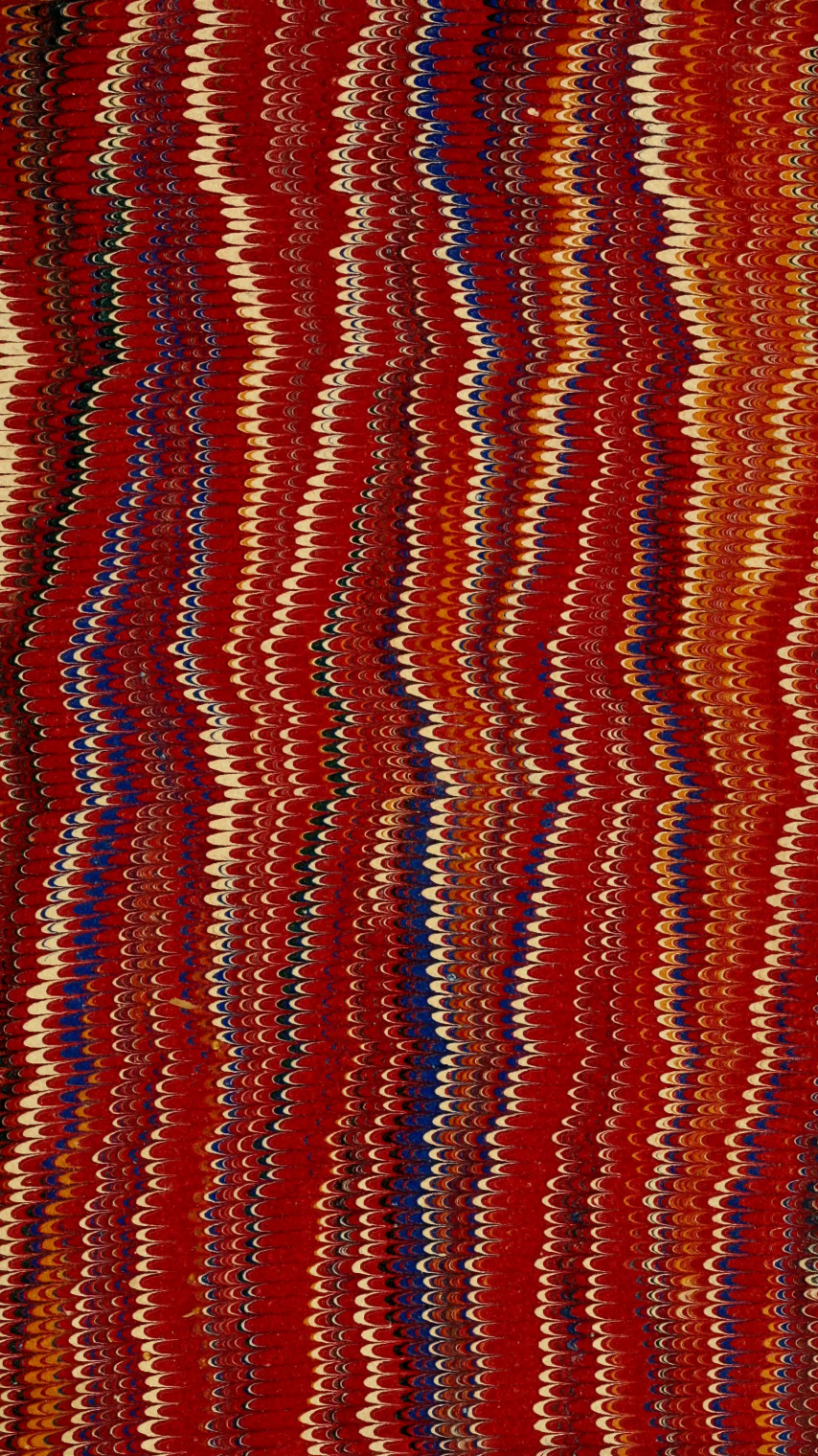
[From a letter to Prof. S. F. Baird.]

The past winter was very poor; the river was quite low and everything favorable for a good run of shad. I fished from January 12 until February 25. This is my sixth and last winter on the Saint John's. Our average catch nightly was 13 during January; during February it was 20. We had a good many northeast winds and many very cold nights, both of which stopped shad from running.

Several fishermen on the lower river have quit the business. Messrs. Melton & Tote, the largest fishery near Jacksonville, running 30 nets, did not pay expenses. Shad sold in Palatka and Jacksonville for 50 cents apiece. We sold all we could catch at Sanford and Orange City. Could have sold ten times as many if we could have caught them. In the winter of 1876 I caught, on an average, 200 shad per night, with a 300-foot net, 20 meshes, $2\frac{1}{2}$ inch mesh, rigged 3 meshes to a 5-inch span. Shad have gradually decreased since, and last winter I fished a 400-foot net, 25 meshes deep, $2\frac{1}{4}$ inch mesh, rigged to 3 meshes on a 4-inch span. My net was rigged to catch fish and she did catch them, except shad, from a 5-inch herring up to 40 pound catfish and gars.

SORRENTO, FLA., *June 5, 1882.*





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